

## ASSIGNMENT 4

Textbook Assignment: "Corrosion Control." Pages 4-1 through 4-58.

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| <p>4-1. What is the greatest threat to the structural integrity of an aircraft?</p> <ol style="list-style-type: none"><li>1. Aircraft design</li><li>2. Aircraft weight</li><li>3. Metal corrosion</li><li>4. Metal composition</li></ol> <p>4-2. Corrosion is detrimental to the integrity of an aircraft. It alters the structure of the materials that make up the aircraft in what manner?</p> <ol style="list-style-type: none"><li>1. Reduction in strength only</li><li>2. Change in mechanical characteristics only</li><li>3. Reduction in strength and change in mechanical characteristics</li><li>4. Decreases aerodynamic efficiency</li></ol> <p>4-3. The materials used in the construction of an aircraft are chosen according to their</p> <ol style="list-style-type: none"><li>1. cost</li><li>2. availability</li><li>3. corrosion-resistant properties,</li><li>4. weight-to-strength ratio</li></ol> <p>4-4. Metal corrosion is defined as the deterioration of metal as it combines with which of the following elements?</p> <ol style="list-style-type: none"><li>1. Nitrogen</li><li>2. Argon</li><li>3. Oxygen</li><li>4. Helium</li></ol> | <p>4-5. On naval aircraft, what materials are used most often to separate susceptible alloys from the corrosive environment?</p> <ol style="list-style-type: none"><li>1. Shrouds</li><li>2. Paints</li><li>3. Sealants</li><li>4. Preservatives</li></ol> <p>4-6. Which of the following is a description of the flow of electrons during electrochemical attack of a metal?</p> <ol style="list-style-type: none"><li>1. Electrons flow from the anodic area to the cathodic area, resulting in the deterioration of the anodic area</li><li>2. Electrons flow from the anodic area to the cathodic area, resulting in the deterioration of the cathodic area</li><li>3. Electrons flow from the cathodic area to the anodic area, resulting in the deterioration of the cathodic area</li><li>4. Electrons flow from the cathodic area to the anodic area, resulting in the deterioration of the anodic area</li></ol> <p>4-7. Which of the following conditions are factors in the electrochemical reaction that causes metals to corrode?</p> <ol style="list-style-type: none"><li>1. Heat and humidity only</li><li>2. Heat and moisture only</li><li>3. Moisture and humidity only</li><li>4. Heat, humidity, and moisture</li></ol> |
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- 4-8. Because of variations in their composition, which of the following aircraft surfaces is the most susceptible to corrosive attack?
1. Alclad
  2. Nonclad
  3. Thin structural
  4. Thick structural
- 4-9. Which of the following conditions is the single greatest contributor to avionics corrosion?
1. Heat
  2. Moisture
  3. Stray voltage
  4. Incomplete circuits
- 4-10. Which of the following publications provides information on aircraft corrosion control for organizational-level maintenance?
1. NAVAIR 01-1A-509
  2. NAVAIR 15-01-500
  3. NAVAIR 16-1-540
  4. NAVAIR 15-02-500
- 4-11. Which of the following publications provides information on aircraft cleaning?
1. NAVAIR 01-1A-509
  2. NAVAIR 16-1-540
  3. NAVAIR 15-02-500
  4. NAVAIR 15-01-500
- 4-12. Which of the following publications provides information on avionics cleaning and corrosion prevention and control?
1. NAVAIR 15-01-500
  2. NAVAIR 15-02-500
  3. NAVAIR 01-1A-507
  4. NAVAIR 16-1-540
- 4-13. Which of the following publications provides information on the preservation of aircraft engines?
1. NAVAIR 15-01-500
  2. NAVAIR 01-1A-518
  3. NAVAIR 01-1A-507
  4. NAVAIR 16-1-540
- 4-14. Which of the following publications provides information on the preservation of naval aircraft?
1. NAVAIR 15-01-500
  2. NAVAIR 01-1A-507
  3. NAVAIR 01-1A-509
  4. NAVAIR 15-02-500
- 4-15. Which of the following publications provides information on the general use of cements, sealants, and coatings used on aircraft?
1. NAVAIR 15-01-500
  2. NAVAIR 01-1A-509
  3. NAVAIR 01-1A-507
  4. NAVAIR 16-1-540
- 4-16. When carrier-based aircraft are transferred to shore activities, what happens to the scope of most corrosion preventive programs?
1. It decreases
  2. It increases
  3. It remains the same
  4. It is canceled
- 4-17. Normally, aircraft squadrons with the best corrosion preventive programs have which of the following benefits?
1. The best safety records
  2. The most use of the aircraft
  3. The lowest operating costs
  4. All of the above

- 4-18. As directed by NAVAIR, aircraft deployed aboard an aircraft carrier will be washed and cleaned a minimum of how often?
1. Every 7 days
  2. Every 10 days
  3. Every 14 days
  4. Every 28 days
- 4-19. Mandatory aircraft cleaning is always required after an aircraft is exposed to which of the following substances?
1. Fire-extinguishing materials splashed on the landing gear
  2. Alkaline cleaning solution splashed on the wings
  3. Exhaust deposits on the aft fuselage
  4. Rocket blast deposits on the forward fuselage
- 4-20. Unpainted surface of struts and actuating cylinder rods should be cleaned or wiped down at what prescribed interval?
1. Daily
  2. Twice weekly
  3. Weekly
  4. Twice monthly
- 4-21. When handling, using, and storing aircraft cleaning materials, what is/are the most serious hazard(s) you will meet?
1. Heat expansion
  2. Flammability only
  3. Toxicity only
  4. Flammability and toxicity
- 4-22. When using hazardous chemicals, you should wear which of the following protective devices?
1. Gloves and aprons only
  2. A face shield only
  3. An approved respirator only
  4. Gloves and aprons, a face shield, and an approved respirator
- 4-23. Solvents must be kept in specially marked containers if they contain more than what percent by volume of chlorinated materials?
1. 8%
  2. 10%
  3. 12%
  4. 24%
- 4-24. When volatile and flammable materials are not being used, they should be stored in which of the following areas?
1. In a metal cruise box inside the corrosion control work spaces
  2. Inside a separate locker in the material control spaces
  3. Inside a separate building or flammable liquids storeroom
  4. Inside a designated hangar space
- 4-25. What solvent is generally used as an all-purpose cleaner in naval aviation maintenance?
1. Methyl ethyl ketone
  2. Aliphatic naphtha
  3. Aromatic naphtha
  4. Dry-cleaning solvent
- 4-26. Which of the following solvents is an alternate compound for cleaning acrylics?
1. Methyl ethyl ketone
  2. Aliphatic naphtha
  3. Aromatic naphtha
  4. Ammonium hydroxide
- 4-27. Safety solvent is intended for use when a high flash point is required. You should NOT use safety solvent to clean which of the following areas of an aircraft?
1. Oxygen systems
  2. Avionic/electrical systems
  3. Disassembled/assembled engine components
  4. Wheel bearing and brake components

4-28. To neutralize the effects of urine and waste products in the lavatories of aircraft, you should use which of the following cleaning agents?

1. Dry-cleaning solvent
2. Aircraft surface cleaning compound
3. Ammonium hydroxide or sodium bicarbonate
4. Sodium phosphate

4-29. In an intermediate maintenance activity, an avionics/electrical maintenance branch that operates a "clean room" should use what type of MIL-C-81302 Freon cleaner?

1. I
2. II
3. III
4. IV

4-30. To produce a high-luster, long-lasting polish on an unpainted aluminum clad surface, you should use what mechanical cleaner?

1. Powdered pumice
2. Fine aluminum wool
3. Aluminum metal polish
4. Abrasive-impregnated cotton wadding

4-31. Which of the following devices should you use to perform a fast and economical cleaning of an aircraft?

1. Cotton mops
2. Conformable applicators
3. Bristle brushes
4. Ajax speed wipes

4-32. There are several steps that you must take before you can actually clean an aircraft. Which of the steps listed below is the first one you should take?

1. Select the correct cleaning agent for the method of cleaning that you will use
2. Ground the aircraft, close the canopy, and secure all doors
3. Park the aircraft in the shade or beneath an overhead shelter, if possible
4. Cover or plug all ducts and openings where cleaning fluid or water could be trapped

4-33. Which of the following cleaning compounds should be used to clean an aircraft that is painted with the tactical paint system?

1. MIL-C-25769
2. MIL-C-43616
3. MIL-C-81309
4. MIL-C-85570

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IN ANSWERING QUESTION 4-34, REFER TO FIGURE 4-6 IN THE TEXTBOOK.

- 4-34. To ensure complete cleaning and rinsing of all aircraft surfaces, you should use which of the following washing sequences?
1. Upper tail and fuselage sections, upper wing surfaces, lower fuselage and tail, lower wing surfaces
  2. Lower surfaces in any sequence followed by upper surfaces in any sequence that will result in adequate rinsing
  3. Underside of wings, underside of fuselage and tail, upper wing and fuselage center section, upper surfaces of fuselage and tail section, including vertical stabilizer
  4. Underside of wings, fuselage, and tail in that order, spraying water from the wing tips and fuselage ends, inboard to center, followed by the same sequence on the upper surfaces
- 4-35. Surfaces that are lightly soiled with oil may be spot-cleaned by wiping them with which of the following substances?
1. Dry-cleaning solvent
  2. Grade IV paralketone
  3. Methyl ethyl ketone
  4. Aromatic naphtha
- 4-36. In an emergency when an aircraft is without a regular waterproof canvas cover, suitable covering and shrouding may be accomplished by the use of which of the following materials?
1. Polyethylene sheet only
  2. Polyethylene-coated cloth only
  3. Metal foil barrier material only
  4. Polyethylene sheet, polyethylene-coated cloth, and metal foil barrier material
- 4-37. Where should you place the cowling and access panels when they are removed during a maintenance task?
1. On the wings near the fuselage
  2. On the deck under the fuselage
  3. On a work stand near the aircraft
  4. On a pad or secure them to the aircraft
- 4-38. The size and composition of an emergency reclamation team is determined by which of the following criteria?
1. Location of the squadron
  2. Size of the squadron
  3. Urgency of the situation
  4. Availability of qualified personnel
- 4-39. Under which of the following conditions is an aircraft most susceptible to a corrosive attack?
1. When it is not being flown only
  2. When it is in shipment only
  3. When it is not being flown or when it is in shipment
  4. When it is being flown
- 4-40. How many levels of preservation methods are used on naval aircraft?
1. One
  2. Two
  3. Three
  4. Four
- 4-41. Level III preservation is used to preserve aircraft for what situation?
1. Long-term storage
  2. Short-term storage
  3. Ocean shipment
  4. Periodic maintenance

- 4-42. Level I preservation should be applied to an aircraft when it is out-of-service for more than what minimum number of days?
1. 7
  2. 14
  3. 28
  4. 30
- 4-43. Which of the following publications contains the requirements for Level I preservation?
1. MIM
  2. IPB
  3. Special PMIC
  4. Special MRC
- 4-44. Which of the following is the main disadvantage of grade IV corrosion preventive compound (paraloketone)?
1. It forms an opaque cover
  2. It is difficult to remove by water spray
  3. It forms a dark, hard film
  4. It is easily removed by water spray
- 4-45. What preservative compound should be used to provide protection for shock struts?
1. Preservative hydraulic oil, MIL-H-46170
  2. Corrosion-preventive petroleum, class 3
  3. Lubricating oil, general-purpose preservative, VV-L-800
  4. Corrosion-preventive compound, solvent cutback, grade 1
- 4-46. Piano-wire hinges require lubricating and corrosion protection. What water-displacing, low-temperature, lubricating oil should you use?
1. Preservative hydraulic oil, MIL-H-46170
  2. Lubricating oil, general-purpose, preservative, VV-L-800
  3. Engine preservative oil, MIL-L-23699
  4. General lubricating oil, MIL-L-7870
- 4-47. You should use corrosion preventive compound MIL-C-81309, type III, on which of the following equipment?
1. Avionic and electrical equipment
  2. Hydraulic system equipment
  3. Engine fuel control systems
  4. Ejection seat mechanisms
- 4-48. Which of the following is a laminated metal-foil material used for the protection of acrylics during cleaning?
1. Polyethylene plastic film
  2. Polyethylene coating cloth
  3. Water vaporproof barrier material
  4. Kraft paper
- 4-49. You should check for corrosion and deterioration during which of the following routine inspections?
1. Daily only
  2. Phase only
  3. Postflight only
  4. Daily, phase, and postflight

- 4-50. Corrosion may occur in several forms, depending on which of the following factors?
1. Metal involved only
  2. Atmospheric conditions only
  3. Corrosion-producing agents present only
  4. Metal involved, atmospheric conditions, and corrosion-producing agents present

A. Direct surface attack  
B. Pitting corrosion  
C. Crevice attack  
D. Intergranular corrosion  
E. Exfoliation corrosion  
F. Fretting corrosion  
G. Fatigue corrosion  
H. Galvanic corrosion  
I. Filiform corrosion  
J. Microbiological corrosion

Figure 4-A

IN ANSWERING QUESTIONS 4-51 THROUGH 4-60, CHOOSE THE FORM OF CORROSION FROM FIGURE 4-A THAT FITS THE DESCRIPTION OF THE CORROSION USED AS THE QUESTION. EACH FORM OF CORROSION IS USED AS AN ANSWER ONLY ONCE.

- 4-51. Threadlike filaments that form under organic substances (such as paint film).
1. A
  2. C
  3. F
  4. I
- 4-52. Fungus growths on the sealing materials of integral fuel tanks.
1. J
  2. F
  3. D
  4. B

- 4-53. Slipping movement between two mating metal surfaces.
1. C
  2. E
  3. F
  4. I
- 4-54. Uniform etching of the metal surfaces.
1. A
  2. B
  3. C
  4. G
- 4-55. Shallow indentations or deep cavities of small diameter that form on metal surfaces.
1. I
  2. H
  3. E
  4. B
- 4-56. Caused by the difference in concentration of the electrolyte or the active metal on the anode and cathode.
1. A
  2. C
  3. G
  4. J
- 4-57. Corrosive attack along the grain boundaries of a metal alloy.
1. C
  2. D
  3. I
  4. J
- 4-58. Metal fractures caused by the combined effects of corrosion and stress applied in cycles to a part.
1. G
  2. F
  3. E
  4. D

- 4-59. Dissimilar metals in contact in a corrosive medium, such as salt water.
1. B
  2. D
  3. E
  4. H
- 4-60. Lifting up of the metal surface caused by the force of expanding corrosion products occurring at the grain boundaries just below the metal surface.
1. E
  2. F
  3. G
  4. H
- 4-61. To identify all the corrosion-prone areas of your squadron's aircraft, you should refer to which of the following publications?
1. Applicable NATOPS manual
  2. Applicable periodic maintenance information cards (PMICS)
  3. Aircraft Cleaning and Corrosion Control Manual
  4. Maintenance requirements cards (MRCs)
- 4-62. When avionic and structural corrosion is compared, which of the following effects is the main difference between avionic and structural corrosion?
1. Avionics systems do not have as many areas in which moisture can be trapped
  2. Corrosion is not as difficult to detect in avionic systems
  3. Small amounts of corrosion can make avionic systems inoperable
  4. Avionic components are more corrosion resistant
- 4-63. Before performing any maintenance on avionic or electrical systems, you should make sure that you have completed which of the following actions?
1. Ground the aircraft
  2. Check and tie down the aircraft
  3. Secure all external electrical power
  4. Install all covers and shrouds
- 4-64. What type of corrosion is usually found around electrical bonding and grounding straps?
1. Filiform
  2. Galvanic
  3. Microbiological
  4. Stress
- 4-65. You are inspecting an aircraft ejection seat. It is very important that even the slightest indication of corrosion be found for which of the following reasons?
1. Corrosion can weaken the structural soundness of the seat
  2. Slight amounts of corrosion may indicate other problems that are not visible
  3. Slight amounts of corrosion may cause the seat to be inoperable
  4. Each of the above
- 4-66. When inspecting engine frontal areas and cooling air vents, what type of discrepancy(ies) are you likely to find?
1. Galvanic corrosion
  2. Stress corrosion cracking
  3. Dirt, dust, gravel, and rain erosion
  4. Intergranular, filiform, and fatigue corrosion

- 4-67. One corrosion-prone area of an aircraft is the bilge area. What condition is the best insurance against corrosion in this area?
1. A good, intact paint system in the bilge area
  2. A clean, dry bilge area
  3. Adequate supply of drain holes in the bilge area
  4. Frequent inspections of the bilge area
- 4-68. Which of the following statement is NOT true regarding the dry honing machine?
1. It is the only approved blasting method of removing corrosion on assembled aircraft
  2. Metal removal can be held to closer limits
  3. May be used on any aircraft skin or surface
  4. May be used in either shipboard or shore-based operations
- 4-69. Corrosion damage limits refer to the amount of metal that may be removed from a corroded part without impairing the strength and function of the part.
1. True
  2. False
- 4-70. What is the purpose of chemically treating a surface after the removal of corrosion products?
1. To protect the metal in place of paint
  2. To increase the surfaces resistance to corrosion
  3. To improve the paint bond to the surface
  4. Both 2 and 3 above
- 4-71. Which of the following statements is true about aircraft painting and touch-up?
1. The primary objective of any paint finish is to reduce the glare by nonspecular coatings
  2. Repainting should not be done for appearance sake only
  3. A faded paint finish indicates poor corrosion prevention and should be repainted
  4. White or light colored, high gloss finishes induce heat absorption